



Spire Global, Inc.
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San Francisco, CA 94103

19 August, 2016

Marlene H. Dortch
Secretary
Federal Communications Commission
International Bureau, Satellite Division
445 12th Street, S.W.
Washington D.C., 20554

Subject: Ex Parte Letter; File No. SAT-LOA-20151123-00078; Spire Satellite Launch on Orbital ATK Antares OA-5 Mission

Based on discussions with NanoRacks LLC ("NanoRacks"), which has a direct relationship with the National Aeronautics and Space Administration ("NASA") / International Space Station ("ISS") Program Director, Spire understands that the NASA/ISS Program Director has agreed to a mission profile for the OA-5 Cygnus spacecraft involving release of four Spire satellites from Cygnus. Under the mission profile, following cargo delivery to ISS, Cygnus shall maneuver to an orbit acceptable to NASA prior to releasing the Spire satellites. That orbit is currently defined as a co-elliptic orbit above the ISS Semi-Major Axis with a relative perigee greater than 45 km. The agreement is subject to:

- a. Flight readiness certification by NASA, particularly with respect to the NanoRacks cubesat deployers that will be used. The flight certification process will confirm the ability to precisely control timing of release of the Spire satellites.
- b. Confirmation that, following launch and docking operations, there is sufficient fuel on Cygnus to execute both the planned satellite deployment and planned disposal operations.
- c. If there is not sufficient fuel for that planned deployment, Cygnus will unberth from ISS and release the Spire satellites at an altitude at least 15 km below and 15 km in front of ISS.

With respect to explosion risks to ISS resulting from Cygnus operations to deploy Spire satellites, because Cygnus operates in close proximity to ISS, an extremely stringent set of safety requirements are levied on the Cygnus spacecraft against any hazardous conditions including accidental explosions. The Cygnus spacecraft is verified by the Safety and Mission Assurance community to be two-fault tolerant against any catastrophic hazards that could endanger the ISS and the crew.

There are no changes to Cygnus during different phases of the mission, so the risk of explosion is no different from pre-ISS arrival, berthed operations, or post-ISS departure when the satellite deployment would occur. The risk of explosion near or at ISS has a far more serious consequence than when Cygnus is away from ISS. Therefore the spacecraft has to be designed to be extremely robust or fault tolerant and thus should satisfactorily pass any risk assessment for an explosion hazard during deployment operations.

NASA has determined that deployment of satellites from cargo resupply spacecraft, from altitudes above the ISS, and at the same inclination, increases the probability of the need for future ISS maneuvers. It is Spire's understanding that the risk of potential future ISS collision avoidance maneuvers caused by the planned deployment of the four OA-5 Spire cubesats is acceptable to NASA, and that NASA will examine similar future missions on a case-by-case basis.

Sincerely,

A handwritten signature in blue ink, appearing to read "Jenny Barna", is written over a horizontal line.

Jenny Barna
Launch Manager
Spire Global, Inc.